Mitsuo CHIHARA*: **Occurrence of the *Gomontia*-like phase in the life history of certain species belonging to *Collinsiella* and *Monostroma*** (A preliminary note)**

千原光雄*: ランソウモドキ属とヒトエグサ属のある種のゴモンチア状発芽体 (予報)**

In my previous papers1) on *Collinsiella* in Japan, it was revealed that the life history of *Collinsiella cava* represents, in the similar manner to that of some *Monostroma*, an alternation of a thick walled unicellular cyst with a macroscopic multicellular gametophyte, and that both zygote and gamete germinate and penetrate the algae or animals on which they were sown. In connection with these phenomena, the shell-perforating growth of *Collinsiella cava* as well as of *Monostroma* sp. is preliminarily reported here.

In spring, zygote and gamete of both *Collinsiella cava* and *Monotroma* sp. collected at Shimoda were respectively attached to some sorts of substrata, such as sterile flakes of shell of molluscs, shell of hen's egg and tube of *Serpula* sp. They were cultivated in dish filled with sterilized sea water till they became fertile.

There was no essential difference between *Collinsiella cava* and *Monostroma* sp. in growth manner of the cysts perforating the calcareous substrata. The zygote and gamete pushed out a protuberance from their lateral part and penetrated gradually into the substrata. Then, they increased in size and thickened their wall. No sign of cell division of the germling was recognized at this stage. But, the pyrenoid of the germling continued to divide and the content of the germling became more densely. As shown in the figure, the shell-inhabiting cysts were various in shape. Such a variation of the shape seems to depend mainly on the difference of the substratum as well as on the genetical difference of the germling. In the summer months, the shell-inhabiting cysts attained their maximum size, 40–80 μ in diameter, but they did not seem to undergo

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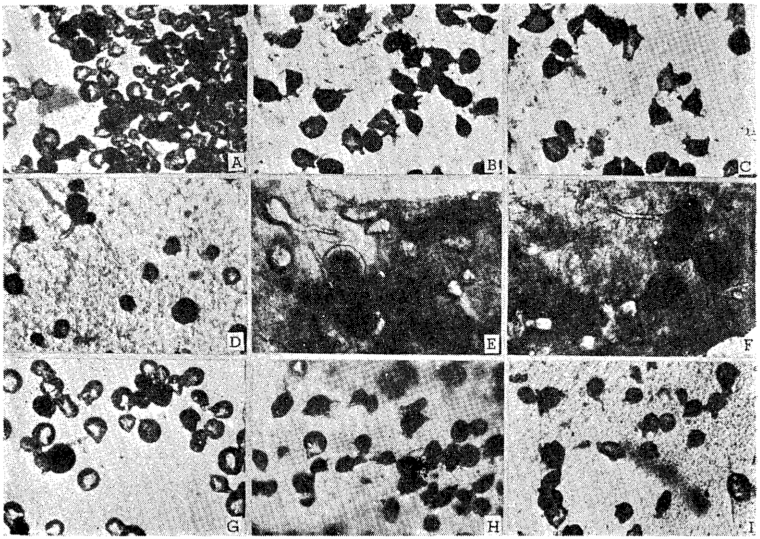
** Supported by a Grant in Aid for Fundamental Scientific Research from the Ministry of Education.

1) Journ. Jap. Bot. **34** (7): 139-201, (1959): Sci. Repts. Tokyo Kyoiku Daigaku, B, **9**: 181-189 (1960)

any essential differentiation. When the fall monthe came, their protoplast began to divide into numerous zooids, each of which is provided with an eye-spot. The zooid escaped outside through a tube formed at the surface of the cyst. There were two kinds of zooids: the one was quadri-flagellated and the other was bi-flagellated. The former seems to be a zoospore originating from the zygocyst, while the latter seems to be a zooid from the cyst derived parthenogenetically from the gamete. No copulation between such zooids was observed.

Such a shell-perforating cyst of *Collinsiella cava* and *Monostroma* sp. reminds me of some similarities to the so-called "sporangium" of the genus *Gomontia* Bornet et Flahault (1888)[2], which is well known by the peculiar habit of boring into calcareous material.

During the course of this study I learned that Drs. Arasaki and Tokuda have also been studying the shell-inhabiting growth of some *Monostroma* in the Tokyo Bay.



A—F. *Gomontia*-like germlings of *Collinsiella cava* growing in the calcareous material. All figures are of 6 months old germlings. Substrata: A, B, C, D. Shell of *Meretrix lamarckii*; D, H, I. Shell of *Solen intermedius*; E, F. Tube of *Serpula* sp. (A—D, G—I. × 60; E, F. × 100).

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[2] Jour. de Bot. **2**: 161-165.